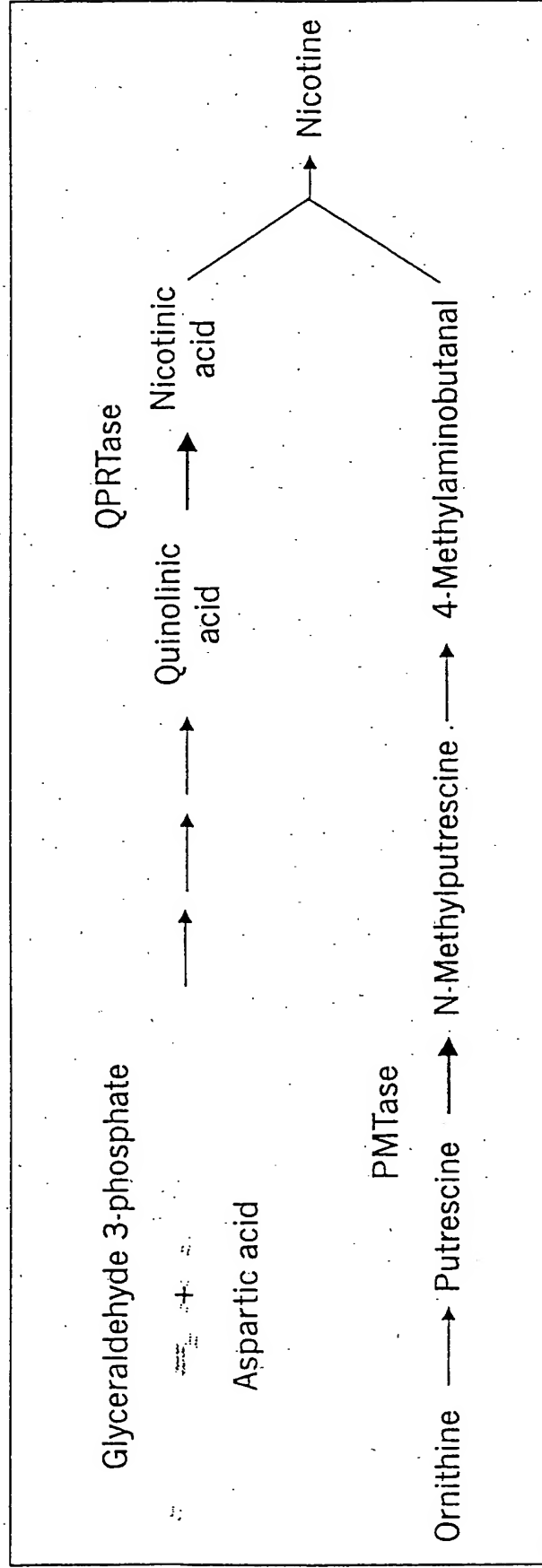


FIG. 1



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AAAATGTCAG CAATAGCCAC CAAGAATACA AGAGTGGAGT CATTAGAGGT GAAACCACCA 180
GCACACCCAA CTTATGATTT AAAGGAAGTT ATGAAACTTG CACTCTCTGA AGATGCTGGG 240
TTTCTAGCAA AGGAAGACGG GATCATAGCA GGAATTGCAC TTGCTGAGAT GATATTCGCG 360
GAAGTTGATC CTTCATTA AAA GGTGGAGTGG TATGTAAATG ATGGCGATAA AGTTCATAAA 420
GGCTTGAAAT TTGGCAAAGT ACAAGGAAAC GCTTACAACA TTGTTATAGC TGAGAGGGTT 480
GTTCTCAATT TTATGCAAAG AATGAGTGGG ATAGCTACAC TAACTAAGGA AATGGCAGAT 540
GCTGCACACC CTGCTTACAT CTTGGAGACT AGGAAAACTG CTCCTGGATT ACGTTTGGTG 600
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GTAATGATAA AAGACAATCA CATATCTGCT GCTGGAGGTG TCGGCAAAGC TCTAAAATCT 720
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AAGGAGGCTG TAGAATTGAT CAATGGGAGG TTTGATACGG AGGCTTCAGG AAATGTTACC 960
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atgtgttaca atgaaaatac ttgatttata agtttggtgt atgtaaaatt ctgtgttact 1380
tcaaatatth tgagatgth 1399

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FIGURE 2A

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MFRAIPFTAT VHPYAITAPR LVVKMSAIAT KNTRVESLEV KPPAHPTYDL 50
KEVMKLALSE DAGNLGDVTC KATIPLDMES DAHFLAKEDG IIAGIALAEM 100
IFAEVDP SLK VEWYVNDGDK VHKGLKFGKV QGNAYNIVIA ERVVLNFMQR 150
MSGIATLTKE MADAAHPAYI LETRKTA PGL RLVDKWAVLI GGGKNHRMGL 200
FDMVMIKDNH ISAAGGVGKA LKSVDQYLEQ NKLIQIGVEVE TRTIEEVREV 250
LDYASQTKTS LTRIMLDNMV VPLSNGDIDV SMLKEAVELI NGRFDTEASG 300
NVTLETVHKI GQTGVTYISS GALTHSVKAL DISLKIDTEL ALEVGRRTKR 350
A 351

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FIGURE 2B

N. tabacum	MFRAIPFTATVHPYAITAPRLVVKMSAIATKNTRVESLEVKPPAHPTYDL
R. rubrum	*-----RPNH-----PVAALS*F----AI
M. leprae	*-----LSDC-----EFDAAR-----
S. typhimurium	*-----PPRR*NPDDR*-----DALL*RINLDI*A----AV
E. coli	*-----PPRR*NPDTR*-----DELL*RINLDI*G----AV
H. sapien	*-----D*EG*ALLLPPVTLAALVDSWLREDC*G-----
S. cerevisiae	*-----PVYE-HLLPVNGAWRQDVTNWLSDEV*S-----
N. tabacum	KEVMKLALSEDAGNLGDVTCKATIPLDMESDAHFLAKEDGI IAGIA----
R. rubrum	D*AVRR**A**L*RA**I*ST*****AATRAH*RFV*RQP**L**LGCA--
M. leprae	-DTIRR**H**LRYGL*I*TQ**V*AGTVVTGSMVPR*P*VIAGVDVALL
S. typhimurium	AQALREDLGGEVDAGN*I*AQL-L*A*TQAH*TVITR*D*VF----CGKR
E. coli	AQALREDLGGTVDANN*I*A*L-L*ENSR*H*TVITR*N*VF----CGKR
H. sapien	-----LNYAALVSGAGP*QAALWAKSP*VL----AGQP
S. cerevisiae	-----FDFGGYVVGSDLKEANLYCKQD*ML---CGVP
N. tabacum	-LAEMIFAEVDPSTLKVVEWYVNDGDKVHKGLK-----FGKVQGNAYNIVI
R. rubrum	--RSAF-ALLDDTVFTTTPLE**AEIAA*QT-----VAE*A*A*RT*LA
M. leprae	VLD*VF-GVDGYRVLY--R*E**ARLQS*QP-----LLTVQAA*RGLLT
S. typhimurium	WVE*VFIQLAGDDVRLT*H*D***AI*ANQT-----VFELN*PARVLLT
E. coli	WVE*VFIQLAGDDVTII*H*D***VINANQS-----LFELE*PSRVLLT
H. sapien	FFDAIFTQL---NCQVS*FLPE*S*LVPVAR-----VAEVR*P*HDLLL
S. cerevisiae	FAW*VFNQC---ELQVE*LFKE*SFLEPSKNDSGKIVVAKIT*P*K**LL
N. tabacum	AERVVLNFMQRMSTGIATLTKEAD--AAH--PAYILETRKTAPGLRLVDK
R. rubrum	***TA***LGHL*****R*RRFG*AI*HT--R*RLTC*****T*****GLE*
M. leprae	***TM***VCHM*****V*VAWV*AVRGT--K*KIRD*****L*****ALQ*
S. typhimurium	G**TA***V*TL**VASEVRRYVGLL*GT--QTQL*D*****L*****TAL*
E. coli	G*PTA***V*TL**VASKVRHYVELLEGT--NTQL*D*****L*****SAL*
H. sapien	G***A**TLARC*****SAAAAVEAARGAGWTGHVAG*****T**F***E*
S. cerevisiae	***TA**ILSRS*****TASHKIISLARSTGYKGTIAG*****T*****RLE*
N. tabacum	WAVLIGGGKNHRMGLFDMVMIKDNHISAAGGVGKALKSVDQYLEQNKLQI
R. rubrum	Y**RC***S***F**D*A*L*****AVA***SA**SRAR-AGVGHMVRI
M. leprae	Y**RV***V***L**G*TAL*****VA*V*S*VD**RA*R-AAAPEL-PC
S. typhimurium	Y***C***A***L**T*AFL*****I*S*S*RQ*VEKAF-W*HPD-APV
E. coli	Y***C***A***L**S*AFL*****I*S*S*RQ*VEKAS-W*HPD-APV
H. sapien	YGL*V**AAS**YD*GGLVML*D**VVPP***EK*VRAARQ---AADFAL
S. cerevisiae	YSM*V**CDT**YD*SS**ML*D***W*T*SITN*V*NARA---VCGFAV

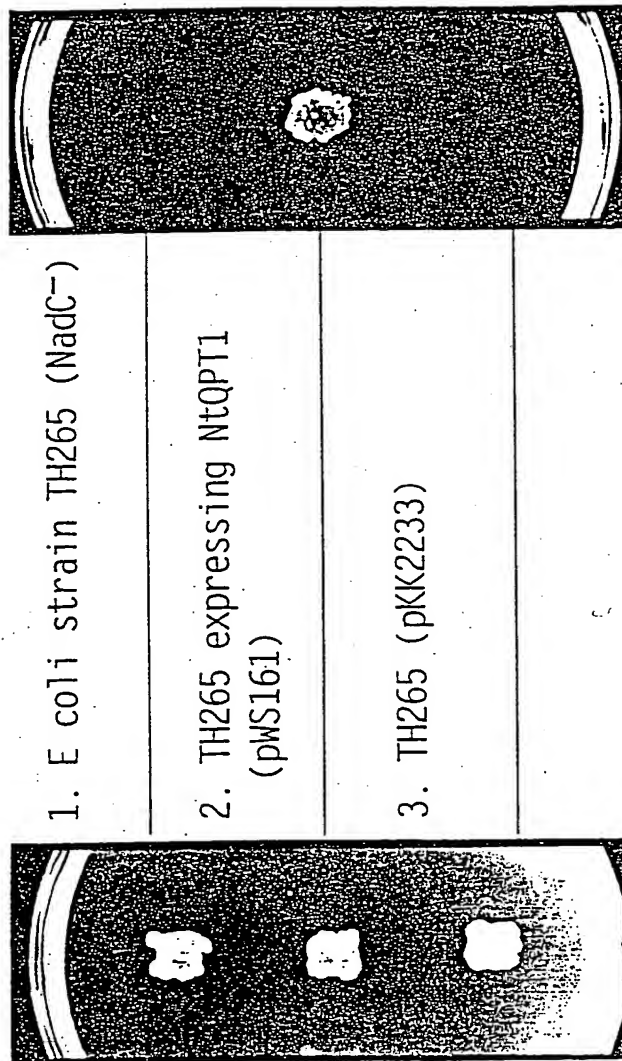
FIGURE 3

N. tabacum	GVEVETRTIEEVREVL DYASQTKTSLTRIMLDNMVVPLSNGDIDVSMLKE
R. rubrum	EI****-L*QLA***AVGGAEV-----VL****-----DAPT----*TR
M. leprae	E****S--L*QLDAM*A-EEPEL-----*L***F--*VWQTQV----AVQ
S. typhimurium	E****N--LDELDDA*K-*GADI-----*****F-----NTDQ----MR*
E. coli	E****N--L**LD*A*K-*GADI-----*****F-----ETEQ----MR*
H. sapien	K****CSSLQ**VQAAE-*GADL-----VL***F-----KPEELHPTAT
S. cerevisiae	KI***CLSED*AT*AIE-*GADV-----*****F-----KGDGLK*CAQ

N. tabacum	AVELI---NGRFDTEASGNVTLETVHKIG-QTGVITYISSGALTHSVKALD
R. rubrum	**DMV---A**LV*****G*S*D*IAALA-ES**D***V*****TT**
M. leprae	RRDIR--APT VLL*S**GLS**NAAIYA-G***DY LAV*****RI**
S. typhimurium	**KRV---**QARL*V*****AE*LREFA-E***DF**VG*****P***
E. coli	**KRT---**KALL*V*****DK*LREFA-E***DF**V*****Q***
H. sapien	*LKAQFPSVA--VEA**GIT*DNLPQF-CGPHIDV**M*M**QA*P***
S. cerevisiae	SLKNKWNGKKHFLLEC**GLN*DNLEEYLCD-DIDIY*TSSIHQGTPVI*

		<u>% Identity</u>	<u>% Similarity</u>
N. tabacum	ISKLI DTEL ALEVGRRTKRA		
R. rubrum	*G*D*VVA-----PPKAERA	15.9	43.2
M. leprae	*G*DL	18.3	37.3
S. typhimurium	LSMRFC	18.2	34.8
E. coli	LSMRFR	17.9	32.8
H. sapien	F***L---F*K*VAPVP*IH	16.8	31.7
S. cerevisiae	F***LAH	14.6	27.8

FIGURE 3 continued



1. E coli strain TH265 (NadC-)

2. TH265 expressing NtQPT1
(pWS161)

3. TH265 (pKK2233)

ME Minimal Media

ME Minimal Media
+ Nicotinic Acid

FIG.4

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FIG. 5

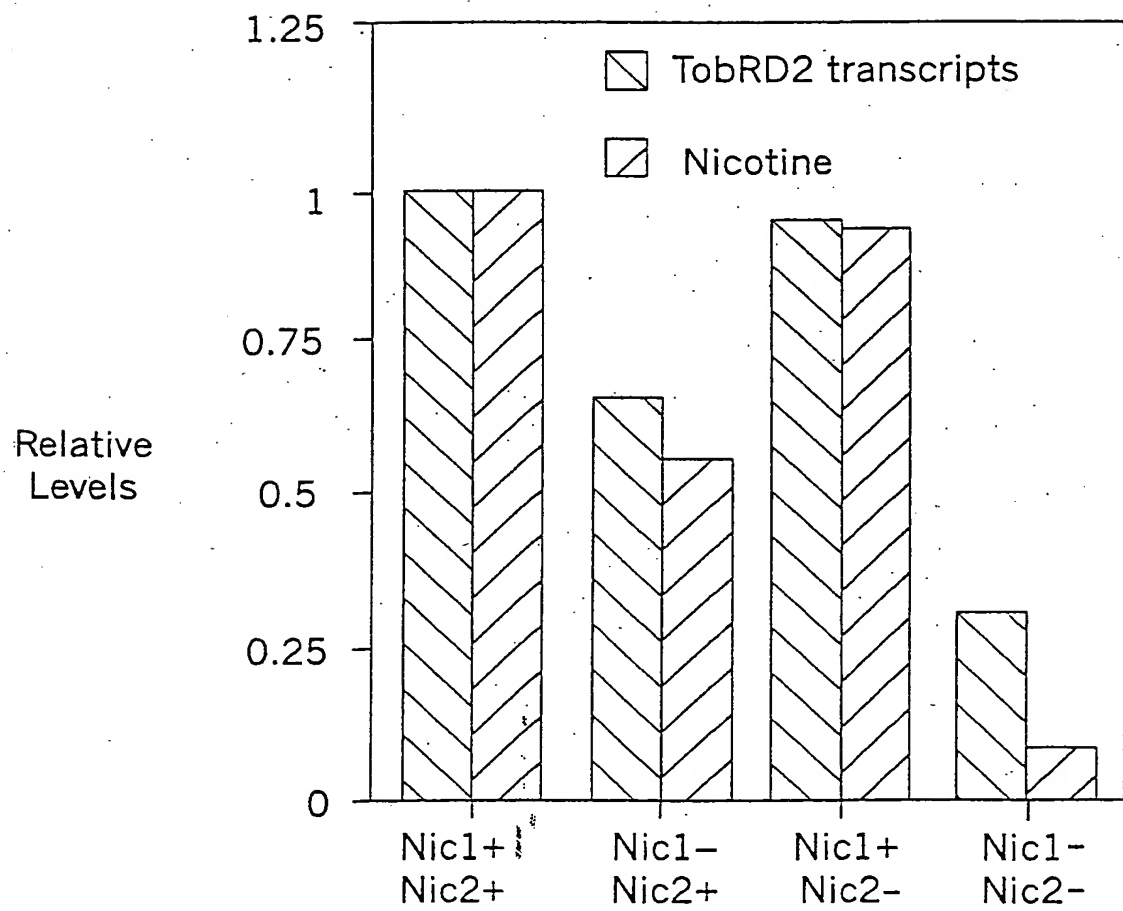


FIG. 6

